

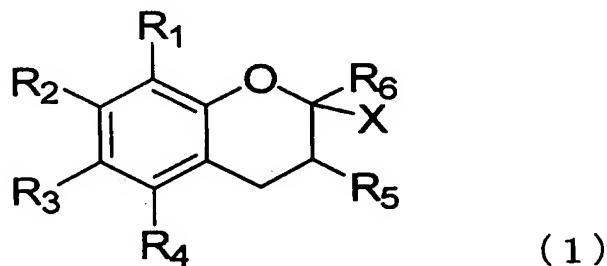
**AMENDMENTS TO THE CLAIMS:**

The following listing of claims replaces all prior listings, and all prior versions, of claims in the application.

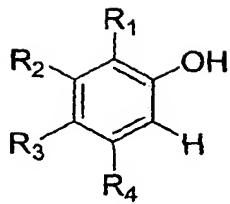
**LISTING OF CLAIMS:**

[1]. (Currently amended) A process for producing a chroman compound represented by formula (1):

[F1]



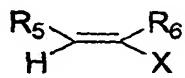
(wherein each of substituents R<sub>1</sub> to R<sub>4</sub>, R<sub>1</sub> to R<sub>6</sub>, and X represents a hydrogen atom, a halogen atom, a hydroxyl group, a methoxy group, an ethoxy group, a carboxyl group, a C1 to C12 alkyl group which may have a substituent, a C6 to C12 aryl group which may have a substituent, a C7 to C12 aralkyl group which may have a substituent, or an ester residue; R<sub>1</sub> to R<sub>4</sub> may be linked to one another; each of R<sub>5</sub> to R<sub>6</sub> represents a hydrogen atom or a C1 to C12 alkyl group, and X represents a hydrogen atom, a carboxyl group, an amide group, a nitrile group, an aldehyde group, an ester group and a C1 to C12 alkyl group which may have a substituent, the substituent represents a halogen atom, a hydroxyl group, a carboxyl group or an ester group, characterized in that the process comprises allowing a phenol represented by formula (2):



(2)

(wherein each of R<sub>1</sub> to R<sub>4</sub> represents as same as those of formula (1)),

an unsaturated compound represented by formula (3):



(3)

(wherein R<sub>5</sub>, R<sub>6</sub> and X represent as same as those of formula (1)) and at least one of the substituents X and R<sub>6</sub> is an ester residue), characterized in that the process comprises allowing a phenol, an olefin, and a formaldehyde to react in the absence of catalyst and in the presence of water in an amount by mole 1 to 10 times that of the phenol.

[2] (Currently amended) A process for producing a chroman compound as described in claim 1, wherein the phenol is an alkylphenol or a polyhydroxybenzene, and the unsaturated compound is at least one member selected from the group consisting of C<sub>3</sub> to C<sub>24</sub> aliphatic compound ~~olefin is a methacrylate ester.~~

[3] (Currently amended) A process for producing a chroman compound as described in claim 2, wherein the phenol is at least one member selected from the group consisting of 2-methylphenol, 3-methylphenol, 4-methylphenol, 2,3-dimethylphenol, 2,4-dimethylphenol, 2,5-dimethylphenol, 3,4-dimethylphenol, 3,5-

dimethylphenol, 2,3,4-trimethylphenol, 2,3,5-trimethylphenol, 2,4,5-trimethylphenol, 3,4,5-trimethylphenol, 2,3,4,5-tetramethylphenol, hydroquinone, 1,4-dihydroxy-2-methylbenzene, 1,4-dihydroxy-2,3-dimethylbenzene, 1,4-dihydroxy-2,5-dimethylbenzene, 1,4-dihydroxy-2,6-dimethylbenzene, and 1,4-dihydroxy-2,3,5-trimethylbenzene, and the unsaturated compound olefin is at least one member selected from the group consisting of acrylic acid, methyl acrylate, ethyl acrylate, acrylonitrile, acrylamide, acrolein, methacrylic acid, methyl methacrylate, ethyl methacrylate, isopropyl methacrylate, n-butyl methacrylate, isobutyl methacrylate, 2-hydroxyethyl methacrylate, 2-methylacrylonitrile, 2-methylacrylamide, methacrolein, crotonic acid, methyl crotonate, ethyl crotonate, crotononitrile, crotonamide, crotonaldehyde, crotonalcohol, 2-methylcrotonic acid, methyl 2-methylcrotonate, ethyl 2-methylcrotonate, 2-methylcrotononitrile, 2-methylcrotonamide, 2-methylcrotonaldehyde, 2-methylcrotonalcohol, 3-methylcrotonic acid, methyl 3-methylcrotonate, ethyl 3-methylcrotonate, 3-methylcrotononitrile, 3-methylcrotonamide, 3-methylcrotonaldehyde, 3-methylcrotonalcohol, 4-methyl-pent-4-enoic acid, 4-methyl-pent-4-enoic acid methyl ester, 4-methyl-pent-4-enoic acid ethyl ester, 4-methyl-pent-4-enal, 4-methyl-pent-4-en-1-ol, 3-methyl-but-3-en-1-ol, and 2-methyl-prop-2-en-1-ol methyl methacrylate, ethyl methacrylate, isopropyl methacrylate, n-butyl methacrylate, isobutyl methacrylate, and 2-hydroxyethyl methacrylate.

[4] (Cancelled).

[5] (Currently amended) A process for producing a chromancarboxylic acid ester as described in claim 12[[4]], wherein the phenol is an alkylphenol or a polyhydroxybenzene, and the olefin is a methacrylate ester.

[6] (Currently amended) A process for producing a chromancarboxylic acid ester as described in claim 5, wherein the phenol is at least one member selected from the group consisting of 2-methylphenol, 3-methylphenol, 4-methylphenol, 2,3-dimethylphenol, 2,4-dimethylphenol, 2,5-dimethylphenol, 3,4-dimethylphenol, 3,5-dimethylphenol, 2,3,4-trimethylphenol, 2,3,5-trimethylphenol, 2,4,5-trimethylphenol, 3,4,5-trimethylphenol, 2,3,4,5-tetramethylphenol, hydroquinone, 1,4-dihydroxy-2-methylbenzene, 1,4-dihydroxy-2,3-dimethylbenzene, 1,4-dihydroxy-2,5-dimethylbenzene, 1,4-dihydroxy-2,6-dimethylbenzene, and 1,4-dihydroxy-2,3,5-trimethylbenzene, and the methacrylate esterolefin is at least one member selected from the group consisting of methyl methacrylate, ethyl methacrylate, isopropyl methacrylate, n-butyl methacrylate, isobutyl methacrylate, and 2-hydroxyethyl methacrylate.

[7] (Currently amended) A process for producing a chromancarboxylic acid ester as described in claim 12[[4]], wherein the methacrylate esterolefin and the formaldehyde are used in amounts in stoichiometrically excess of the amount of the phenol.

[8] (Currently amended) A process for producing a chromancarboxylic acid ester as described in claim 12[[4]], wherein the formaldehyde is at least one member selected from the group consisting of formaldehyde and paraformaldehyde.

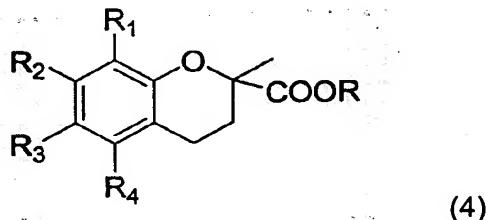
[9] (Currently amended) A process for producing methyl 6-hydroxy-2,5,7,8-tetramethylchroman-2-carboxylate, characterized in that the process comprises allowing 1,4-dihydroxy-2,3,5-trimethylbenzene 1,4-dihydroxy-2,6-dimethylbenzene, methyl methacrylate, and a formaldehyde to react in the absence of catalyst and in the presence of water in an amount by mole 1 to 10 times that of 1,4-dihydroxy-2,3,5-trimethylbenzene 1,4-dihydroxy-2,6-dimethylbenzene.

[10] (Currently amended) A process for producing a chromancarboxylic acid, characterized by comprising hydrolyzing a chromancarboxylic acid ester produced through a process as recited in claim 12[[4]].

[11] (Previously presented) A process for producing a chromancarboxylic acid, characterized by comprising hydrolyzing methyl 6-hydroxy-2,5,7,8-tetramethylchroman-2-carboxylate produced through a process as recited in claim 9.

12. (New) A process for producing a chromancarboxylic acid ester represented by formula (4):

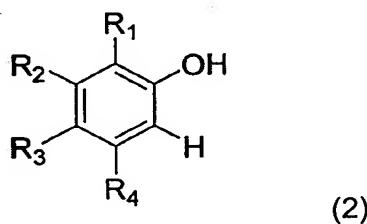
[F4]



(wherein each of R<sub>1</sub> to R<sub>4</sub> represents a hydrogen atom, a halogen atom, a hydroxyl group, a methoxy group, an ethoxy group, a carboxyl group, or a C<sub>1</sub> to C<sub>12</sub>\_alkyl

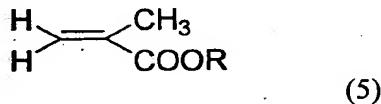
group which may have a substituent, a C6 to C12 aryl group which may have a substituent, a C7 to C12 aralkyl group which may have a substituent; R<sub>1</sub> to R<sub>4</sub> may be linked to one another; R represents a C1 to C12 alkyl group which may have a substituent, the substituent represents a halogen atom, a hydroxyl group, a carboxyl group or an ester group), characterized in that the process comprises allowing a phenol represented by formula (2):

[F5]



(wherein each of substituents R<sub>1</sub> to R<sub>4</sub> represents as same as those of formula (4)), a methacrylate ester represented by formula (5):

[F6]



(wherein R represents as same as that of formula (4))

and a formaldehyde to react in the absence of catalyst and in the presence of water in an amount by mole 1 to 10 times that of the phenol.